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THE MARYLAND WEATHER SERVICE.

THE organization of State weather services to conduct observations over limited areas has been undertaken in recent years in many portions of the country. What the national service does for the entire United States, the local service does for each State. While the United States Signal Service affords information concerning the general climatic conditions prevailing over the whole country, the State service shows what those conditions are in the various districts and counties of the State. It at once becomes an important medium to the agriculturist, through which he learns the most favorable times to plant or reap, and how best to protect his crops. It aids the shipping interests along the coasts and in the bays and rivers, by indicating the character of the weather and the direction of the winds. It gives to all the valuable predictions of the national service, together with the conditions that locally prevail. The local service has been officially recognized by many of the States already as of the greatest commercial importance, and provision has been made for its maintenance. In others the chief expense has been borne by the United States Signal Service, and a sufficient number of men detailed to efficiently conduct the work.

The Maryland State weather service has been organized under the joint auspices of the Johns Hopkins University, the Maryland Agricultural College, and the United States Signal Service. The officers are: William B. Clark, Johns Hopkins University, director; Milton Whitney, Maryland Agricultural College, secretary and treasurer; C. P. Cronk, United States Signal Service, meteorologist in charge. The United States Signal Service will furnish men to take charge of the details of the work, will supply instruments to the observers in the various portions of the State, and will afford the means of sending out weather predictions and general summaries of temperature and rainfall. The ten stations in Maryland that now report directly to Washington will become incorporated in the State service, and the number of stations will be increased to forty or more, to meet the requirements of an efficient service.

It is proposed to print monthly a general report of meteorological conditions, and weekly to send throughout the State a brief statement as to the crop prospects. A scheme will be devised by which frost warnings may also be given. An important feature of the work will be the establishment of signal stations at such points on the Chesapeake Bay and its tributaries as can be readily communicated with, so that the captains of vessels can gain information as to the probable direction of the winds. As the efficiency of the State service will depend largely upon the closeness of co-operation with the United States Signal Service, it has been considered advisable to move the Baltimore office of the latter to the university, and it will after May 20 have quarters in the physical laboratory, upon the roof of which building the observations will be taken. An office will be retained in the centre of the business portion of the city so as to be in close communication with the public as heretofore. It is anticipated that the work outlined above will be fully inaugurated during the present summer.

COAL IN THE SHAN STATES.

A REPORT from Dr. Noetling, the geological expert who has been dispatched from India to investigate the coal measures of the region between the Irrawaddy and the Salween, has recently been issued in Burmah, and an abstract of it has appeared in the *London Times*. The result of the analyses of twelve samples of coal show a remarkable uniformity of composition. The highest percentage of fixed carbon is 38.58, and the lowest 31.69. If the average of eleven analyses is taken, it is found that Shan coal has the following composition: Volatile matter (including moisture), 55.40; fixed carbon, 34.94; ash, 9.67. The coal is, therefore, of poor quality, and can hardly be termed "coal." "Lignite," or "brown coal," would better express its composition. Shan coal, when fresh, would make good fuel, and, being rather hard, it will stand long transport. Those seams from which, owing to its friability, the coal could not be well transported, should make an excellent material for patent fuel. It is much poorer than the

coal of the southern Shan States. In the latter the percentage of fixed carbon is from 64 to 70. So far, however, as is known, coal is not very plentiful in the southern Shan States, while the seams in the northern States are more favorably deposited, and, being found in workable quantities, they could be depended on for the supply of fuel to any railway through the Shan States. The fields examined by Dr. Noetling in the northern Shan States were seven in number, the two chief ones being Laisho and Namma Manze. He does not think they will be of any value so long as there is no communication by which the coal can be easily brought down to the Irrawaddy. The coal-fields are about one hundred and seventy miles away from the nearest centre of traffic. The present road leading to them is only suited for carts for about fifty miles, after which pack animals must be employed. It is absolutely essential that a railway should be constructed if the coal fields of the northern Shan States are to be of any economical value. But the construction of a railway line to this part of the country would be a costly undertaking if the fuel necessary to work it had to be transported from Rangoon. Moreover, the alluvial deposits in both the principal coal-fields would form a serious obstacle to mining operations. The thick layer of clay in the Laisho field and the conglomerate in the Namma field would make the sinking of a shaft difficult, as it would have to be constructed very substantially in order to resist the lateral pressure which it would have to stand in the alluvial deposits. Owing to the peculiar way in which the coal-bearing strata are found, a large quantity of water must be expected in both coal-fields, and this would require strong pumping machinery. Finally, the climate of these valleys is feverish, and the health of the miners would therefore be severely tried. It thus appears that coal-mining in the northern Shan States is in the distant future; every thing seems to be unfavorable to its development,—no transport, difficulties of working, quantities of water, unhealthy districts, doubtful seams, and bad coal.

SCIENTIFIC EXPEDITION TO SOUTH MARYLAND.

A REPORT of the recent scientific expedition into southern Maryland appears in the Johns Hopkins University circular for June. The need of a more complete knowledge of the material resources of the southern portion of the State of Maryland led to the organization of this expedition to further its investigation. The expedition, under the joint auspices of the Johns Hopkins University, the Maryland Agricultural College, and the United States Geological Survey, had in view the study, from different standpoints, of the varied capabilities of this section. The importance for this work of co-operation between the State and national scientific institutions was recognized from the start, and it is determined that the plan for joint investigation, thus inaugurated by a preliminary and general survey, shall in the near future embrace, under similar auspices, a detailed examination of the geology, agriculture, and archaeology of all of southern Maryland. A wrong impression would, however, be conveyed, if the idea should be gained that nothing has been accomplished hitherto in this direction. Several of the members of the expedition have been actively employed in the past in making investigations in various portions of the region, among whom Mr. Darton deserves especial mention, while Mr. Clark has conducted thither three annual geological excursions, so that the knowledge gained in previous years has afforded a basis for work at the present time. The expedition received from the start the cordial support of all those interested in the material progress of southern Maryland. The necessary means of transportation were furnished by the State upon the authorization of the Board of Public Works and of Gen. Joseph B. Seth, commander of the Oyster Police Navy. The steamer "Gov. P. F. Thomas," Capt. Howard, and the schooners "Daisy Archer" and "Folly" were placed at the disposal of the expedition, and their officers and crews rendered most efficient service. The heads of the several institutions interested appointed the following representatives, who organized as a Board of Control: William B. Clark, Johns Hopkins University, chairman; Milton Whitney, Maryland Agricultural College, secretary and treasurer; W. J. McGee, United States Geological Survey. The other members of the expedition included Professor George H.